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Research Letter

Image Authentication Using Added Signal-Dependent Noise

Xin Cindy Guo and Dimitrios Hatzinakos

Department of Electrical and Computer Engineering, University of Toronto, Toronto M5S 1A8, Canada

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Abstract

Image authentication has applications in security systems, photo forensics, and photo journalism. This paper presents an image authentication scheme using added signal-dependent noise. Imperceptible noise is embedded into the image at the time of acquisition according to the film grain noise model. During authentication, the image is divided into key-dependent overlapping blocks and the parameters of the embedded noise are extracted. The variance of the extracted parameters can be used to show the authenticity of an image. Test results indicate that the proposed algorithm is robust against content-preserving modifications such as JPEG compression and at the same time is capable of detecting malicious tampering.